

REMARKS

Applicants thank the Examiner for the thorough consideration given the present application. Claims 1-5, 7-10, 12 and 13 are currently being prosecuted. The Examiner is respectfully requested to reconsider his rejections in view of the amendments and remarks as set forth below.

ENTRY OF AMENDMENT

It is respectfully requested that the present Amendment should be entered into the official file in view of the fact that the amendments to the claims automatically place the application into condition for allowance.

Alternatively, if the Examiner does not agree that the application is in condition for allowance, it is respectfully requested that the present Amendment should be entered for the purpose of appeal. The present Amendment cancels a number of claims, thus simplifying the issues on appeal. Furthermore, the amendment to claim 1 adds the limitation of claim 6 thereto, which is not a new issue. Applicants have also amended claim 1 to use the term "embedded therein" rather than "formed thereon." Since the Examiner has already addressed this issue and included the Nishide et al. reference to show this feature, Applicants submit that this is not a new issue either.

REJECTION UNDER 35 U.S.C. § 103

Claims 1-5, 7-18 and 20-25 stand rejected under 35 U.S.C. § 103 as being obvious over Berger et al. (U.S. Patent 6,528,145) in view of Nishide et al. (U.S. Patent 5,827,605) and Zak (U.S. Patent 6,006,427). This rejection is respectfully traversed.

By way of the present Amendment, claims 6, 11 and 14-25 have been cancelled rendering this part of the rejection moot. Furthermore, the limitations of claim 6 have been added to claim 1. Since claim 6 was not included in this rejection, Applicants submit that this rejection is now overcome. These claims will be considered further in the rejection applied against claim 6.

Claims 6 and 19 stand rejected under 35 USC 103 as being obvious over Berger et al., Nishide et al. and Zak, as applied above, and further in view of Czjakowski et al. (U.S. Patent 6,613,978). This rejection is respectfully traversed.

The Examiner cited Berger et al. to show an inorganic substrate having wiring formed thereon and may be connected to a print circuit board. The Examiner admits that the reference does not teach organic print circuit boards and at least one passive component formed on the inorganic substrate.

Fig. 1 of Berger shows a first embodiment having a ceramic filled polymer substrate while Figs. 2 and 3 show a second embodiment with a polymer filled ceramic substrate. The Examiner cited Col. 10, lines 32-45 as showing two

substrates located on two sides of an inorganic substrate. Applicants submit that this section discusses the first embodiment of ceramic filled polymer substrates which are formed by stacking multiple layers of ceramic filled polymeric material 12. Also, this section discloses a surface mount technology. Thus, this section of Berger et al. does not disclose two organic substrates or print circuit boards located on two sides of an inorganic substrate. Further, a Ball Grid Array is the surface mount technology for joining the substrate to the print circuit board. Col. 12, lines 29-36 discusses the second embodiment where a composite substrate 20 includes multiple layers of ceramic 22 having pores 28 filled with polymeric material 30. Thus, the composite substrate is formed by mixing the ceramic and the polymeric material. Fig. 2 does not disclose two organic substrates located on two sides of the inorganic substrate.

Col. 12, lines 34-36 discuss the variant of the second embodiment shown in Fig. 3. In this variant, the composite substrate 20' is formed by mixing the ceramic 22 with the polymeric material 34. However, the variant of Fig. 3 also does not disclose two organic substrates located on two sides of the inorganic substrate. Accordingly, Berger et al. does not disclose a passive component formed on the inorganic substrate and circuits formed on two organic substrates.

The Examiner relies on Nishide et al. to teach the use of an inorganic substrate having at least a passive component formed thereon. The Examiner relies on Zak to teach the use of organic circuit boards. Applicants submit that

even if the three references are combined, there is no disclosure of two organic substrates located on two sides of the inorganic substrate.

The Examiner cites the Czjakowski et al. reference to reach a plurality of print circuit boards formed on a ceramic substrate.

Applicants submit that the combination of references does not teach the present invention. The Examiner cited Czjakowski et al. to teach a plurality of print circuit boards formed on a ceramic substrate. Applicants agree that the reference shows a substrate having components mounted thereon with shielding lids 120 provided on either side of the substrate. In the embodiments of Figs. 7 and 8, a pair of shielding lids are provided on each side. However, Applicants submit that the shielding lids are not organic substrates and do not have circuits for electrical connections. Furthermore, Applicants note that the Examiner has not indicated the location of the teaching of the plurality of print circuit boards. Applicants have not found any indication in the reference of this feature. It is furthermore noted that claim 1 requires that each of the organic substrates is formed of such a plurality of print circuit boards. Accordingly, the claim includes an inorganic substrate and a plurality of organic print circuit boards on each side. Applicants submit that Czjakowski et al., whether taken alone or in combination with the other references, does not show this structure.

Applicants furthermore suggest that it is not obvious to combine the teachings of the four references into this claimed construction. Applicants

again suggest that there would be no motivation to combine these four references. The Examiner's only motivation provided is to reduce the cost of making the device. Admittedly the cost of manufacture is always a consideration in any art. However, the question is what would motivate one skilled in the art to think about using a combination of inorganic and organic substrates and the use of a plurality of organic circuit boards on each side of the inorganic substrate? Applicants submit that this is not shown in any manner by the Examiner. The mere cost alone would not suggest such a combination. Further, the use of the same material would tend to suggest a lower cost, thus teaching against the concept of having an inorganic central substrate and two organic substrates provided on either side. Accordingly, Applicants submit that the present invention is not obvious over this combination of references.

Claims 2-5, 7-10, 12 and 13 depend from claim 1 and as such are also considered to be allowable. In addition, these claims cited other features which make them additionally allowable.

CONCLUSION

In view of the above remarks, it is believed that the claims clearly distinguish over the patents relied on by the Examiner, either alone or in combination. In view of this, reconsideration of the rejections and allowance of all the claims are respectfully requested.

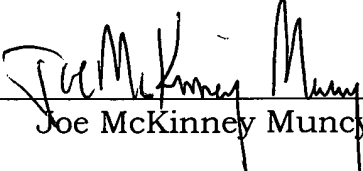
Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Robert F. Gnuse (Reg. No. 27,295) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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By


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